

844

Yorkshire Philosophical Society.

ANNUAL REPORT

FOR

MDCCCLXIII.



ANNUAL REPORT
OF THE COUNCIL
OF THE
YORKSHIRE
PHILOSOPHICAL SOCIETY

FOR
MDCCCLXIII.

PRESENTED TO THE ANNUAL MEETING,

FEBRUARY, 1864.



YORK:
H. SOTHERAN, BOOKSELLER, CONEYSTREET.

1864.

TRUSTEES
OF
THE YORKSHIRE MUSEUM,

APPOINTED BY ROYAL GRANT.

HON. AND VERY REV. HENRY HOWARD, D. D.

SIR WILLIAM LAWSON, BART., F. S. A.

ROBERT DENISON, ESQ.

REV. WILLIAM VERNON HARCOURT, F. R. S.

PATRONESS

OF THE

Yorkshire Philosophical Society.

HER MAJESTY THE QUEEN.

PATRONS.

THE ARCHBISHOP OF CANTERBURY.

THE ARCHBISHOP OF YORK.

THE DUKE OF NORTHUMBERLAND, F. R. S.

THE EARL OF CARLISLE, K. G., F. R. S.

THE LORD FEVERSHAM.

OFFICERS OF THE SOCIETY, 1863.

PRESIDENT:

THE EARL OF CARLISLE, K. G., F. R. S.

VICE-PRESIDENTS:

THE EARL OF ZETLAND, K. T.

THE LORD LONDESBOROUGH.

THE HON. & VERY REV. THE DEAN OF YORK.

WILLIAM RUDSTON READ, F. L. S.

JOHN PHILLIPS, F. R. S.

THE REV. W. V. HARCOURT, F. R. S.

ROBERT DENISON.

THE REV. CANON HEY.

THOMAS ALLIS, F. L. S.

THE REV. JOHN KENRICK, F. S. A.

TREASURER:

WILLIAM GRAY, F. R. A. S., F. G. S.

COUNCIL:

Elected 1862 . . . EDWIN WADE.

REV. ROBERT DANIEL.

W. E. SWAINE, M. D.

Elected 1863 . . . REV. G. H. PHILIPS.

EDWARD SMALLWOOD.

WILLIAM MATTERSON, M. D.

S. W. NORTH.

(for 2 years) J. H. GIBSON, M. D.

Elected 1864 . . WILLIAM PROCTER, M. D., F. C. S.

JOSEPH WILKINSON.

REV. THOMAS MYERS.

WILLIAM C. ANDERSON.

HON. SECRETARY:

T. S. NOBLE, F. R. A. S.

CURATORS :

GEOLGY AND MINERALOGY .	WM. PROCTER, M. D., F. C. S.
COMPARATIVE ANATOMY . .	THOMAS ALLIS, F. L. S.
BRITISH ORNITHOLOGY . .	W. RUDSTON READ, F. L. S.
INSECTS AND CRUSTACEA . .	REV. CANON HEY.
ANTIQUARIAN DEPARTMENT .	REV. JOHN KENRICK, F. S. A.
LIBRARY	REV. JOHN LEES.
BOTANY	WILLIAM MATTERSON, M. D.
OBSERVATORY & METEOROLOGY, <i>under the Care of a Committee</i> <i>consisting of</i>	REV. W. V. HARCOURT, F. R. S.
	W. GRAY, F. R. A. S., F. G. S.
	JOHN FORD.
	REV. CANON HEY.
	T. S. NOBLE, F. R. A. S.
	REV. JOHN LEES.

KEEPER OF THE MUSEUM :

WILLIAM S. DALLAS, F. L. S.

SUBCURATOR OF THE MUSEUM & GARDENS :

HENRY BAINES.

REPORT OF THE COUNCIL

OF THE

YORKSHIRE PHILOSOPHICAL SOCIETY.

FEB. 2, 1864.

It is with much pleasure that, in presenting their Annual Report for 1863, the Council congratulate the Members on the continued prosperity of the Society, and on its prospect of extended usefulness. The financial position of the Society, as will be learnt from the statement to be made hereafter, is very satisfactory, and a steady advance has been effected during the past year in those arrangements by which the scientific usefulness of the Institution is to be secured and increased.

The general GEOLOGICAL Collection, with the exception of the Fossils from the Eocene Tertiary beds, many of which, from their fragility, require to be placed in glass-topped boxes, has been entirely re-arranged, mounted, and labelled, in a manner which, it is hoped, will much increase the amount of instruction to be gained from its inspection. During the present year Mr. John F. Walker has presented a small Collection of Fossils from the Upper Greensand of Cambridge, a formation which was previously entirely unrepresented in our Museum.

The MINERALOGICAL Collection has received no additions of importance during the past year.

The Curator of ANTIQUITIES reports that the Antiquarian Department of the Museum has not received in the past year

any remarkable additions, and the communications made to the Monthly Meetings have consequently been furnished by general rather than local archæology. In the course of the last spring a considerable number of Silver Coins were reported to have been found at Malton, and to have been claimed by the Crown as treasure trove. As it was understood to be the practice of the Lords of the Treasury to consult the Keeper of the Coins of the British Museum respecting such discoveries, a request was made to Mr. Vaux, the head of the numismatic department, that the claim of the York Museum to receive at least duplicates of the coins found in this county might be considered. Four coins of the reigns of Edward I., II., and III., have accordingly been forwarded to us, through the medium of Mr. Monkman, of Malton. Their value is not great, but it is hoped that a precedent has thus been established which will be followed in any future case of treasure trove in the County of York.

The Sepulchral Monument to Corellia Optata, found at the Mount, and described in the Report for 1861, has, by the kindness of Mr. Rush, been added to the Collection of Roman Inscriptions in the Hospitium.

The Corporation of this City have again showed their enlightened interest in the preservation of its antiquities, by resolving to complete the restoration of the Walls near Walmgate Bar begun a few years since, but left unfinished in consequence of the exhaustion of the fund raised by subscription for this purpose. It is hoped that means will also be provided against their again falling into that state of decay which at no remote period threatened their destruction.

The arrangement by which the greater portion of the Close of the ancient Abbey of St. Mary's has been obtained on lease from the Crown will be detailed in another part of the Report. The Curator of Antiquities may be allowed especially to congratulate the Members on its conclusion, as it fulfils an earnest wish of his venerable predecessor, and places all that remains of the Abbey Church within the ornamental grounds of the Society.

It was intimated to the Council by the Treasurer of the British Archæological Association that it would hold its Annual

Congress this year at Leeds, and that one day would be devoted to a visit to York and the examination of its antiquities. The Council gladly agreed to open its Grounds and Collections to the Association, and prepared the outline of a route by which the principal objects of antiquity in the city might be most conveniently inspected. About fifty Members of the Association visited York on the 19th of October, and the Council have received from the Treasurer and Secretary acknowledgments of the success which attended their arrangements. To this result the kind co-operation of the Lord Mayor (W. Fox Clark, Esq.) and The Hon. and Very Rev. the Dean contributed in no small degree.

Two works published by Members of this Society in the course of the past year call for special notice in connexion with our local antiquities. The Rev. W. H. Dixon, F. S. A., by whom the *Fasti Eboracenses* were projected, was a Member of the first Council of the Yorkshire Philosophical Society, at its foundation in 1823. The memory of many readers of Mr. Raine's Preface to the learned and interesting work in which he has enlarged and completed Mr. Dixon's plan, will bear testimony to the truth of the character given of him by the editor. In the "*Life of Marmaduke Rawdon, of York*," published by the Camden Society, the social condition and internal history of our city in the 17th century, have received from Mr. Davies that ample and accurate illustration which no other editor could have so well supplied.

Mr. Rudston Read, the Curator of BRITISH ORNITHOLOGY, has much gratification in reporting an important addition to the Museum by the formation of a Collection of British Mammalia, in accordance with the wish already repeatedly expressed by him in his annual reports. This Collection is still by no means complete as regards the smaller British Quadrupeds; but the larger and some of the rarer species have been obtained with unexpected readiness. The expense of its formation has been somewhat greater than was anticipated, but Mr. Read trusts that it will serve as an additional attraction to Members, and increase the interest taken by the public in the Museum. The chief additional outlay has been occasioned by

the mounting of a 'Royal' Stag, shot by the Earl of Stamford and Warrington in the Highlands, and presented to the Museum by his Lordship. The expense of preparing this handsome present was £10, but its majestic appearance has already been much admired by visitors, and Mr. Read has no doubt that the Society will regard the money expended on it as well bestowed. The Society is indebted to Henry Acroyd, Esq., of Baddinton Hall, near Nantwich, for the present of a fine mounted specimen of the Wild Cat, now becoming one of the rarest of British Mammals; and also to A. Clapham, Esq., of Scarbro', for a female of the White Tailed Eagle, which will be added to the Rudston Collection. The thanks of the Society are likewise due to Mr. Thomas Brady, of Low Ousegate, for his very valuable gift of a beautiful Collection of Eggs of British Birds, which have been carefully arranged with the best of those already in the Society's possession.

The general ZOOLOGICAL Collection has received few additions during the past year, and none of these require special notice, with the exception of the fine specimens of Gold and Silver Pheasants, presented by H. S. Thompson, Esq., M. P. These consisted of males of the two species, accompanied by a female of the Golden Pheasant, in process of acquiring the male plumage.

The Curator of ENTOMOLOGY reports that the arrangement of the Collection of British Lepidoptera is in progress, and he hopes that it will shortly be completed.

The Curator of BOTANY has to report no additions to the Collections under his charge, which are generally in good order.

The most valuable addition made to the LIBRARY during the past year is a copy of the magnificent work of Mr. J. B. Waring, on the "Masterpieces of Industrial Art and Sculpture in the International Exhibition of 1862," which has been presented to the Society by J. P. Brown-Westhead, Esq., M. P. Of this splendid book the whole of the letterpress and two-thirds of the plates are now published, and have been received from Mr. Westhead. Mr. Davies has also presented to the Society a copy of "The Life of Marmaduke Rawdon, of York," edited by him,—a work already referred to by the Curator of An-

tiquities; and, by the kindness of Mrs. Dixon, a large paper impression of the other book mentioned in Mr. Kenrick's report, the first volume of the "Lives of the Archbishops of York," has also been added to the Library.

The Council have much pleasure in stating, that the Rev. John Kenrick has kindly offered to the Society the copyright of a selection of the valuable papers read by him before the Members of the Society. In undertaking the publication of these papers the Council have but to announce the fact to insure an extensive demand. The best thanks of the Society are due to the Rev. John Kenrick for his kindness in acceding to the wishes of its Council, and it is a matter for congratulation, that papers of so great value to those interested in antiquarian and historical pursuits will be preserved in a permanent form. It is proposed to devote the profits derived from the sale of this work to the purchase of new books for the Library.

The Curator of METEOROLOGICAL INSTRUMENTS reports that the mean temperature of the year 1863 was 49·46 degrees of Fahrenheit, being 2·25 degrees above a mean of the last ten years, and higher than that of any year since 1856. With the exception of September, which was below a mean, and August, which was an exact mean, each month was above a mean of the last ten years.

The Rain-fall of the year was slightly below a mean of the last ten years, being 22·23 inches against a mean of 22·84 inches. From February to July, both inclusive, each month had a plus quantity. It is unsafe to conclude hastily regarding appearances of permanent increase or decrease in the annual rain-fall. The following statement looks like decrease:—

For ten years ending Dec. 31, 1840	.	24·013 inches.
„ „ 1850	.	24·834 „
„ „ 1860	.	23·265 „
„ „ 1862	.	22·839 „
„ „ 1863	.	22·829 „

And yet for thirty years ending Dec. 31, 1860, the mean annual rain-fall for York is 24 inches, the mean assigned by Professor Phillips in his work on the climate, &c., of Yorkshire.

The registry of the winds shows an unusual amount from the more genial quarters,—the south, south-west, and west amounting to 237 days.

METEOROLOGICAL REGISTER, YORK, 1863.

BAROMETER.				RAIN.		THERMOMETER.					Prevailing Wind.
	Highest.	Lowest.	Mean.	Inches.	Days.	Average Max.	Average Min.	Mean.	Highest.	Lowest.	
Jan.	30·508	28·850	29·549	2·81	20	44·6	35·3	40·0	54·5	30·0	S.W.
Feb.	30·710	29·512	30·118	0·51	5	47·1	36·5	41·8	54·0	25·5	S.W.
Mar.	30·514	29·180	29·749	1·11	15	50·9	37·9	44·4	60·0	26·5	Westerly.
April	30·668	29·380	29·836	0·61	9	56·1	40·7	48·4	62·5	32·5	do.
May	30·386	29·404	29·947	0·95	10	59·0	43·4	51·2	65·5	34·5	Variable.
June	30·250	29·322	29·744	1·98	11	65·8	51·4	58·6	74·5	43·0	S.
July	30·786	29·494	30·032	1·86	9	68·9	50·5	59·7	82·0	42·0	W.
Aug.	30·152	29·334	29·733	3·36	21	66·8	52·8	59·8	75·0	43·0	S.W.
Sept.	30·282	28·746	29·656	2·47	18	59·0	47·3	53·2	66·0	40·0	do.
Oct.	30·250	28·950	29·643	3·13	21	55·7	44·8	50·3	63·0	32·5	do.
Nov.	30·476	28·786	29·856	1·85	16	49·0	39·2	44·1	59·0	27·0	do.
Dec.	30·400	28·694	29·893	1·59	9	47·1	37·0	42·1	54·0	28·0	do.
			29·813	22·23	164			49·46			

PREVALENCE OF WINDS.

N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
14	14	22	38	46	82	109	33 = 365 — 7 omissions.

RAIN-FALL, 1863.

	Malton.	Wheldrake.	York.	Ackworth.	Sheffield.	Settle.
Jan.	3.11	2.87	2.81	3.11	5.49	6.90
Feb.	0.63	0.50	0.51	0.28	1.05	2.71
Mar.	0.66	1.05	1.11	0.64	0.96	1.75
April	1.70	0.55	0.61	0.68	0.94	2.61
May	1.13	0.91	0.95	0.75	1.15	2.30
June	1.82	1.80	1.98	2.96	5.59	4.05
July	2.16	1.65	1.86	1.59	1.94	1.03
Aug.	5.32	4.28	3.36	3.00	2.48	3.43
Sept.	2.16	2.02	2.47	2.69	3.16	5.59
Oct.	4.36	2.82	3.13	2.69	4.07	5.39
Nov.	2.70	1.97	1.85	1.55	2.63	4.49
Dec.	2.09	1.57	1.59	1.15	2.16	4.03
Totals	27.84	21.99	22.23	21.09	31.62	44.28

The most important matter of business to which the Council have to advert is the completion of the arrangements connected with the acquisition by this Society of the land lately in the occupation of Mr. Bearpark. As stated in the Report for 1862, the Society obtained a lease of this ground from the Crown for thirty-one years, at a rent of £120 per annum, and on getting possession in April last, the Council found tenants for the greater part of the property.

Arrangements have since been made with the Committee of the Blind School, by which the Society will obtain the piece of ground containing the Choir of the Abbey Church in exchange for an equal portion of the new property. The Council hope that this will be thrown open to the Members in the course of the coming spring. The whole of the remaining land and the tenements upon the property are now let at an annual rent of £111 10s., so that the Society will eventually obtain this

important addition to the gardens at an expense of £8 10s. per annum. In the account for 1863, however, the amount of rent received from this property for the half-year ending on the 9th October is only £50 15s. This deficiency is caused by the arrangements for the letting of the tenements not having been completed.

In other respects the statement of the Society's financial position shows a decided improvement upon that of last year. The total amount of Subscriptions received is indeed only £719 4s. against £726 1s. in 1862; but this apparent deficiency is due solely to the large amount of arrears recovered in the latter year, the receipts for the current subscriptions showing a slight increase. The amount received for the admission fees of New Members is £43 against £32 in 1862.

The continued interest taken by the public in the objects of the Society is evinced by the sum paid for admission at the gates, which amounted to £199 5s. in 1863, exceeding by £19 the sum obtained from this source in the preceding year, and by £4 the average of the three last years.

The income from the Swimming Bath has also increased in a satisfactory manner; the amount obtained from this source being £98 11s. 3d. against £72 5s. 11d. in 1862. The average income from the Swimming Bath for the three years 1860—62 was £79.

The Total Income of the Society from all sources amounts to £1,301 11s. 11d., or deducting £50 15s. for the new rents, and £12 for hire of the tent in 1862, to £1,238 16s. 11d., against £1,190 17s. 4d. and £12, or £1,202 17s. 4d. in 1862.

With regard to the Expenditure the Council report that the Rent paid to the Crown has been increased by a half-year's rent of the new ground from £1 to £59 5s.; but against this increase we have to set the amount of rents, £50 15s., received from tenants and placed to the Society's credit.

Although endeavouring to practise the utmost economy in the management of the Society's affairs, the Council have been compelled, by the alterations made upon Lendal Hill, to expend a considerable sum upon the house occupied by Miss Briskham, at the Museum Gates. They have also been obliged to paint

the Railings separating the Gardens from the Esplanade ; and these two items have caused the amount charged for general expenses and repairs, namely £161 6s. 2d., to be considerably above the average of former years. The expenditure of £39 2s. 6d. in the purchase and preparation of specimens, which is also much larger than usual, has been chiefly incurred in fitting up the case of British Mammalia referred to in Mr. Read's report. The Total Expenditure of the year is £1,193 17s. 1d., or deducting £58 5s. for comparison with last year, to £1,135 12s. 8d., against £1,119 18s. 11d. in 1862. The excess of Income over Expenditure during the year is £107 14s. 3d., and the balance against the Society is thus reduced to £226 3s. 5d.

The LECTURES delivered in the Theatre of the Museum during the year 1863 were thirteen in number. For three of these the Society was indebted to the Rev. John Kenrick ; the Rev. George Rowe, Dr. Procter, Mr. S. W. North, and Mr. Dallas, each delivered two Lectures ; and the remainder were single Lectures by the Rev. Canon Robinson and Capt. O'Brien. Abstracts of the Papers read at the Monthly Meetings will be appended to this Report.

The number of New Members elected since the last Annual Meeting has been twenty ; and besides these, three former Members, who had resigned for a time, have been re-admitted, making the total addition to the number of Members twenty-three. The loss of Members by death and resignation during the same period has been seventeen, but of one of these the widow desires to continue her husband's subscription. Of Lady Subscribers six have been admitted and three lost during 1863 ; and of Associates four have been elected and three have resigned during the same period. The Society has thus gained seven Members, three Lady Subscribers, and one Associate, since the last Annual Meeting.

One of the earliest of the Honorary Members of the Society, Mr. W. H. Dykes, F. L. S., of Wakefield, has died quite recently. Mr. Dykes, who resided in Hull at the time of the establishment of the Yorkshire Philosophical Society, paid much attention to Geology, and was of considerable service to

the Society in the early days of its existence. The Council have also to record the death of one of the Foreign Honorary Members of the Society, namely, Professor Louis Albert Necker, of Geneva, a man distinguished both as a member of a family which has for four generations furnished occupants to professorial chairs in Geneva, and as an accomplished Geologist and Physicist. Professor Necker died at Portree, in the Isle of Skye, on the 20th November, 1861, at the age of 76.

The Council propose Sir Charles Lyell for election by the Meeting as an Honorary Member. It will be unnecessary for the Council to say anything in support of this proposition. Equally distinguished as an original observer, and as a generalizer of the great mass of geological facts, Sir Charles Lyell must always stand in the first rank of British Geologists, and it will be no small honor for this Society to enrol his name in its list of Honorary Members.

The Council propose Robert Denison, Esq., as a Vice-President, in the room of William Procter, Esq., M. D., who retires from that office. They also propose the re-election of Joseph Wilkinson, Esq., as a Member of Council, in accordance with the second Resolution passed at the last Annual Meeting; and as New Members of Council, the Rev. Thomas Myers, W. C. Anderson, Esq., and William Procter, Esq., M. D., in place of Robert Davies, Esq., F.S.A., John Ford, Esq., and the Rev. W. E. Harrison, who retire by rotation.

W. GRAY, TREASURER.

MEMBERS ELECTED SINCE FEB. 1863.

1 8 6 3 .

His Grace the Archbishop of York.
 John Baker, *Pavement*.
 Captain Brickenden, *Minster Yard*.
 John Colburn, *Low-Ousegate*.
 J. G. Fitch, *Heworth*.
 Rev. William Greenwell, *Clifton*.
 Henry Guy, *New-Street*.
 William Knapton, *Aldwark*.
 C. M. Luden, *Bootham*.
 Edwin Monk, Mus. Doc., *Minster Yard*.
 William Moore, *St. Mary's*.
 William Osborn, *Bootham Terrace*.
 William Simpson, *Clifton*.
 Miss Smith, 35, *Bootham*.
 Rev. Canon Trevor, *York*.
 John Teale, *Parliament-Street*.

1 8 6 4 .

Jonathan Burt, *New Manor House, Heworth*.
 Robert Fenwick, *Gate Fulford Hall*.
 David Graham, *Market Street*.
 Rev. George Rowe, *Training College*.

ASSOCIATES, 1863.

G. H. Atwell, *Dispensary*.
 Lionel Booth, M. D., *Dispensary*.
 Walter J. Ray, *Lendal*.
 Rev. J. C. Thompson, *The Castle*.

LADY SUBSCRIBERS, ADMITTED 1863.

Mrs. Camidge, *Gray's Court*.
 Mrs. Gray, *Bootham Terrace*.
 Mrs. Scott, *Blake Street*.
 Mrs. Strickland, *Blake Street*.
 Mrs. Ward, *Gillygate*.
 Miss Ann Worsley, *Bootham*.

RESOLUTIONS

PASSED AT THE ANNUAL MEETING, FEB. 2ND, 1864.

1. That Sir Charles Lyell be elected an Honorary Member of the Society.

2. That the Report of the Council now read be adopted and printed for circulation amongst the Members, Lady Subscribers and Associates of the Society, and that the Council be empowered to treat with the authorities of the Blind School for the proposed exchange of land.

3. That the thanks of the Society be given to the Members of the Council retiring from office, also to the Treasurer, Secretary and Curators for their valuable services, and that authority be given to the Council to hold Horticultural Meetings in the Museum Grounds, and to give admission to the Public to the Museum and Hospitium, on Whit-Monday and Tuesday, under the same regulations as last year.

4. That the thanks of the Meeting be given to the Chairman.

LECTURES

DELIVERED DURING THE YEAR 1863.

JAN. 16.—On Admiral Fitzroy's system of Forecasting the Weather; by CAPTAIN O'BRIEN.

FEB. 11.—On the Structure and Habits of Crustacea; by W. S. DALLAS, Esq., F. L. S.

FEB. 20.—On the Illuminating Principles of Coal Tar; by WILLIAM PROCTER, Esq., M. D., F. C. S.

MARCH 4.—On Scientific Expeditions to Egypt; by the REV. JOHN KENRICK, M. A.

MARCH 18.—On Jamaica; by the REV. GEORGE ROWE, M. A.

MARCH 25.—On the Origin and Structure of Language; by the REV. CANON ROBINSON.

MARCH 30.—On some Recent Researches into the probable Antiquity of Man; by S. W. NORTH, Esq.

OCT. 14.—On the two new Metals, Thallium and Magnesium; by WILLIAM PROCTER, Esq., M. D., F. C. S.

OCT. 28.—On the loss of Classical Literature produced by the Invasion of the Barbarians and other Causes; by the REV. JOHN KENRICK, M. A.

NOV. 4.—On the Recovery of Classical Literature at the Revival of Letters; by the REV. JOHN KENRICK, M. A.

NOV. 11.—On the Nile; by the REV. GEORGE ROWE, M. A.

NOV. 23. On the various theories which have been advanced to explain the origin of species; by S. W. NORTH, Esq.

DEC. 9.—On Fossil Fishes; by W. S. DALLAS, Esq., F. L. S.

COMMUNICATIONS
TO THE
MONTHLY MEETINGS,
1863.

MARCH 3.—The REV. JOHN KENRICK read some portions of a letter addressed to him by the Rev. C. B. Norcliffe relating to the discovery of Roman Remains at Langton. These remains were found in a field about a mile to the east of the village of Langton, adjoining the four cross roads which lead respectively to Birdsall, Langton, Malton, and North Grimston. About half a mile to the north are two tumuli, two sides of a square camp, and some earth-works. The tessellated pavement discovered had suffered great damage from the plough. About a square foot of it, which remained uninjured, was composed of 162 tesserae, all cut out of chalk, although the rock of the site is coralline oolite, and the nearest chalk is at a distance of two miles. Numerous detached chalk tesserae of various sizes were found, and also some small bluish ones, (probably derived from the clay shales of the Wolds,) four tesserae of brick, seven fragments of cement, and two pieces of an urn. Three feet below the surface a large quantity of wood-ashes, and part of the upper jaw of a boar were discovered. A little to the west, foundations running north and south were traced for about forty yards, and at this point a large block of stone, evidently from the Birdsall quarries, was found. This stone measured $22\frac{1}{2}$ inches by 27, and 12 inches in depth; it was squared and chamfered on three sides, and on its upper surface was a hole five inches in diameter, and one inch and a quarter deep, apparently for the reception of a pillar or column.

The REV. JOHN KENRICK also read some “additional remarks on the Roman Waxed Tablets discovered in the gold mines of Transylvania,” of which he communicated a notice to the Society at its meeting of 4th Nov., 1862. From information subsequently acquired.

it appeared probable that the tablets pronounced to be spurious by Sir F. Madden were not Massmann's, but two tablets on beech wood, forged by a dealer through whose hands Massmann's tablets had passed. Mr. Kenrick records six instances of the discovery of Roman tablets in the Transylvanian mines.

APRIL 7.—DR. PROCTER read a paper "On Photolithography, Photozincography, and other methods of Heliographic Engraving." The author stated that the tediousness and expense attendant on ordinary photographic printing, together with the uncertainty of its results owing to the frequent want of stability in pictures produced with silver-salts, rendered the discovery of some different means of multiplying photographic pictures highly desirable. He described the process adopted by Niepce de Saint-Victor for obtaining an etched metal plate, the photogalvanographic process of Pretsch, founded upon the discovery by Mr. Mungo Ponton (in 1830) of the photographic properties of bichromate of potash in contact with gelatine or other organic matters, and Mr. Talbot's photoglyphy,—none of which processes had met with more than a limited success, the methods now chiefly employed being photolithography and photozincography. In these processes a positive picture is obtained from a negative photograph in transfer lithographic ink, and transferred to a prepared lithographic stone or zinc plate; this is then treated in the usual manner with gum and acid, and is ready to furnish impressions. Examples illustrative of the different stages in the process, and of its results, were exhibited to the members by Dr. Procter; these included some beautiful copies of prints presented by Sir Henry James, by whom the process of photozincography has been adopted with excellent results in the reduction of the Maps of the Ordnance Survey.

A communication was also read from the REV. JOHN KENRICK with reference to some of the donations which had been made to the Society. Amongst these is a silver coin of Corinth, exhibiting on one side the head of Minerva, on the other the winged horse, Pegasus. A silver coin or medal of Charles II. (*Carolus a Carolo*) shows a figure of Britannia, with the motto, "*Quatuor Maria vindico*,"—"I claim the four seas,"—alluding to the famous dispute between the Dutch and English in the 17th century, with regard to the maritime supremacy of England. Of the copper tokens, foreign and colonial coins, presented by Mr. North, the largest number are

local tokens, value a farthing, a half-penny, and a penny, issued by individuals or companies to supply the want of copper currency. They belong chiefly to two periods, 1791—1796 and from 1811 to the end of the war, when we know that a great want of small change prevailed. From G. J. Yarburgh, Esq., of Heslington Hall, has been received what appears to be a weight for the silver contained in a half-crown of the time of Charles I. It was found at Heslington Hall, but it is not known whether it came from a wall which had been pulled down, or from a pond which had been cleaned out. On the obverse it exhibits the king on horseback, in the attitude common on his coins, with the motto, “*Honi soit qui mal y pense* ;” on the reverse, C. R., with some letters above which it is not easy to decipher, and below, 2s. 6d. Weighed against some half-crowns of Charles I. in the Society’s cabinet, it so nearly corresponds with them in weight as to leave no doubt that it has been a standard for the half-crown. A mint was established in York, in St. William’s College, in 1643—4, (see Mr. Davies’ paper in the Proceedings of the Yorkshire Philosophical Society, p. 243,) and this may be a relic of the coining apparatus.

OCT. 6.—DR. PROCTER read a paper “On the Red Chalk.” He traced the course of this formation from its appearance at Speeton, on the Yorkshire coast, whence it follows the base of the Wolds, at first in a westerly direction, then turning sharply to the south-east and making its appearance in several places, especially at Pocklington, Market Weighton, and Brantingham. Near the last-mentioned place it sinks below the marshes bordering the Humber. On the opposite side of that estuary the Red Chalk occurs at Ferriby ; it is known to exist at Louth and Harrington ; it probably skirts the Lincolnshire Wolds, but little is known of its course in that county. Crossing the Wash the Red Chalk shows itself again at Hunstanton, on the north-west coast of Norfolk ; it also occurs near Lynn ; and at Leziate, a short distance to the north-east, it disappears entirely. Thus, although nowhere of any great thickness, the Red Chalk appears to fringe and underlie the whole of the white chalk of the north-eastern part of England. In the southern counties no trace of it is to be met with. The Palæontological evidence and the position of the bed seem to indicate that the Red Chalk belongs to that portion of the Cretaceous series known as the “Upper Greensand.” Its colouring matter consists of peroxide of iron, some of which is probably in combination with

silica. The source of this peroxide of iron is rather obscure. From the abundance and state of preservation of the fossils it seems probable that the bed was not deposited in its present state, but that, when first formed, it contained some body capable of producing the red colour by subsequent decomposition. Dr. Procter found no essential difference in the composition of the Red Chalk of Hunstanton and Speeton. From the mean of three analyses of the latter the following results were obtained :—

Carbonate of Lime	42·80
Peroxide of Iron	36·70
Alumina.....	1·43
Silica	1·93
Sulphate of Lime.....	0·86
Carbonate of Magnesia	0·41
Water.....	15·50
Loss	0·37
	<hr/>
	100·00
	<hr/>

The darker parts contained as much as 30—36 per cent. of peroxide of iron; the pale red portions gave only 5—13 per cent. The peroxide of iron has been supposed to be derived from the decomposition of iron pyrites in the rock; but this would have given rise to a large quantity of sulphate of lime, of which, however, the amount never exceeded 2 per cent. No specimen yielded more than 2 per cent. of silica, and this, with the small amount of alumina (1·43 per cent.) seems to preclude the notion that the oxide of iron is produced by the decomposition of glauconite or augite. Dr. Procter is inclined to adopt the suggestion made by Mr. Seeley, of Cambridge, that the peroxide of iron in the Red Chalk is derived from the decomposition of particles similar to those of the greensand, the dark green colour of which is likewise due to the presence of iron.

Nov. 3.—MR. W. S. DALLAS read some “Notes on Mr. Pengelly’s Researches upon the Lignite Beds of Bovey Tracey.” The deposit of Bovey Tracey occupies a valley among the hills of Eastern Devonshire, a little to the north of Torbay. It is traversed by the river Teign, and in its upper part also by the Bovey, a tributary of the Teign. Essentially the valley may be regarded as a lake-like expansion of the valley of the Teign, and a slight depression of its level would suffice to convert it again into a lake, as it was at the

period of the deposition of the beds of clay and lignite which now occupy its bottom. Mr. Pengelly's researches have been made chiefly at the pit near Bovey Tracey, from which the lignite is extracted for economic purposes. The section obtained in the south wall of this pit shows upwards of seventy beds of clay, sand, and lignite, measuring 125 feet in thickness. Of sand there are only four beds, three near the surface, and one of great thickness near the middle of the deposit, dividing the formation into an upper and lower series. In sections further to the east the upper sand-beds disappear, and at the same time the great middle sand-bed thins off from about eleven feet to ten inches, furnishing clear indications that the source of the materials of the deposit must have been the granitic region of Dartmoor, lying to the north-west. The estimated thickness of the deposit near Bovey Tracey is at least 218 feet, but the total amount of material deposited is probably far greater. About seventy fathoms east of the pit there is a fault, beyond which a totally distinct set of beds is found: these consist of clays and sands, with only a single thin stratum of lignite, and Mr. Pengelly regards them as constituting the upper part of the formation, of which the lignitiferous portion near Bovey Tracey has been deprived by denudation. The lignite beds, which in the Bovey Tracey section have a total thickness of 44 feet, are composed of the remains of plants, carried down into the lake from the high grounds surrounding it. The greater portion of these have been converted into mere lignite, in which no structure can be detected, but in some both of the lignite and clay beds recognisable portions of plants are met with, sometimes in great abundance. The plants found indicate that the vegetation must have flourished under, at least, a sub-tropical climate. They include species of laurel, cinnamons, fig-trees, and similar plants, and also a climbing palm, allied to those common in the Brazilian forests. Beyond the region on which these plants grew, and probably on the Dartmoor range, there must have been at the same time a vast forest of coniferous trees, belonging to the genus *Sequoia*, the only living species of which are to be found in California. One of these is the tree commonly known as the *Wellingtonia gigantea*, and celebrated for the enormous size to which it attains; its relatives in the vicinity of Bovey Tracey were also of large dimensions, the remains of trunks measuring at least six feet in diameter having been met with. The fragments of this tree, described as *Sequoia Couttsiae*, in honour of Miss Burdett Coutts, at whose expense Mr. Pengelly's

researches have been carried on, constitute the greater portion of the mass of lignite. The Bovey Tracey deposit belongs to the early part of the Miocene or Middle Tertiary period, of which the Hempstead beds in the Isle of Wight are also British examples. Several plants are common to the Bovey beds and those at Hempstead, and among these is the *Sequoia Couttsia*, which forms almost the whole of the lower parts of the Bovey deposit; these lower beds and the Hempstead beds are therefore probably contemporaneous, and the upper Bovey beds may belong to the next later stage of the Miocene period. The leaf-beds of Mull, discovered in 1851 by the Duke of Argyle, appear to be a little higher in the series of strata, although still belonging to the Miocene group, and corresponding with certain beds of that age in Iceland. The surface of the Bovey valley is covered by a bed of sandy clay, containing angular stones and gravel, which is termed by the workmen "the head." This is of considerably later date than the lignitiferous deposit, containing leaves of the dwarf birch and creeping willows of Arctic latitudes, which give evidence of that period when all the northern parts of this island were submerged beneath an icy sea.

DEC. 1.—The REV. JOHN KENRICK read a "Notice of some Phœnician and Ancient Roman Coins still current in the Spanish Towns on the Mediterranean." The coins described in this paper had been collected in the course of the summer by a friend of Mr. Kenrick's while engaged in an excursion on the Mediterranean shores in pursuit of objects of Natural History. The ancient coins of Spain may be divided into three classes:—those bearing Phœnician inscriptions and devices; those inscribed with so-called Celtiberian or Turdetanian letters; and those which exhibit legends in the Roman characters. The collection contained only coins of the first and third classes. Two coins with Phœnician inscriptions are both of Malaga, the Malaca of the ancients. *Malach* in Hebrew signifies *salt*; it probably had the same meaning in Phœnician, and we learn from Strabo, who remarks that the town had a Phœnician air, that there were establishments here for salting fish. The legend on the coins is M. L. K. T., or Malakat; the letters are Phœnician, and nearly identical with those of the old Hebrew alphabet. The last letter, *tau*, is in the form of a cross; the word *tau* is used in Hebrew for a mark or sign put upon anything to distinguish it, and a cross is evidently the simplest of all marks. The *tau* of later Hebrew alphabets is more complex and not suited

for a mark. The capped head on the obverse of the coins of Malaca, with the smith's tongs behind it, might be taken for the head of Vulcan, but is generally called the head of a Cabirus, the Cabiri being Phœnician deities, who certainly presided over metallurgy, and were therefore associated with Vulcan and represented with the same attributes. Malaca being situated in the neighbourhood of a region abounding in minerals, the worship of Vulcan and of the Cabiri was perfectly natural in such a country. The reverse of two of the coins shows a star of eight rays, and the third a radiated head, both probably having reference to the sun.

The other coins have inscriptions in the Roman characters. The name Carteia on two of them is unquestionably of Phœnician origin, its three consonants, Q (pronounced hard), R, T, being those of the Hebrew name for town (as in Kiriath-jearim, &c.) and of the first syllable of Carthage (the new town). The site of Carteia has been the subject of dispute, but the numerous ancient remains found at Rocabillo, in the Bay of Algeçiras, indicate this as its probable locality, especially in connexion with Livy's statement that it was situated "where the ocean first begins to open from the straits." The origin of the colony of Carteia is recorded by Livy (43, 3); it took place in the year 171 B. C. Of the two coins of Carteia in the collection, one has on the obverse a rudely formed head, and on the reverse a dolphin, with the inscription C. Vib. Aid. (Caius Vibius Ædilis), and Cart. in the exergue. The archaic spelling of Ædilis and the rudeness of the coin seem to refer it to the early times of the Roman occupation of Spain. The other Carteian coin is much later. It has a turreted head, with the inscription, "Germanico et Druso," and, on the reverse, a rudder and the legend Cæsaribus iiii vir. Cart. Drusus became Cæsar in A. D. 14, and Germanicus died in A. D. 19; the date of the coin is therefore between those two years. There are two coins of Acinipo, which stood near the modern town of Ronda. They bear the name, on one side, between two ears of corn, and on the other a bunch of grapes. A coin of Castulo, now Cazlona, is recognized by the winged sphinx on the reverse. Another is of Corduba, here called Colonia Patricia. The last is a coin of Obulco, now Porcuna, in Andalusia. The obverse shows a female head, with the letters Obulco; the reverse has L. Aimil. M. Juni. Aid., above a plough and below an ear of corn. From its rudeness and the archaic form of the diphthongs this coin belongs to the same early period as the first coin of Carteia described above.

DONATIONS TO THE MUSEUM.

GEOLOGY AND MINERALOGY.

Denison, Robert, Esq.....	Specimen of Fossil wood.
	Large specimen of Fluor Spar.
Dunhill, C. H., Esq.	Specimen of Toadstone, from Derbyshire.
Harcourt, Rev. Canon ..	Goniatites, and other Fossils from the Carboniferous shale of Todmorden.
Harrison, Rev. John	Fossils from Japan.
Johnstone, Rev. Canon ..	Two specimens of <i>Lima cardiiformis</i> , from the inferior oolite near Sutton.
Wightman, John, Esq. } (<i>Blossom Street</i>)	Choanite, cut and polished, from Ventnor, Isle of Wight.

ZOOLOGY.

Brady, Mr. Thos., (<i>Low- Ousegate</i>)	} A Collection of British Birds' Eggs.
Creyke, Ven. Archdeacon	
Dallas, W. S., Esq.	A short-tailed Field Mouse.
Denison, Robt., Esq.	Specimens of Gorgoniæ.
Herries, Lady, (<i>Micklegate</i>)	Two specimens of <i>Dynastes Hercules</i> .
HollinsJas., Esq., (<i>Heworth</i>)	} Eared Grebe from Geelong.
<i>Green</i>)	
Morris, Rev. F. O., (<i>Nun- burnholme</i>)	} Exotic Insects of various orders.
Read, W. H. R., Esq.	
	A common Rat.
	A great Snipe.

- Read, W. H. R., Esq. Two specimens of the Young of the
great spotted Woodpecker (*Picus
major*).
- A specimen of the Serotine Bat.
- A Stoat.
- Stamford and Warrington, }
the Earl of } A specimen of the male Red Deer.
- Thompson, H. S., Esq., }
(*Kirby Hall*) } Male and female specimens of the
Golden Pheasant, the female ac-
quiring the male plumage.
- Male specimen of the Silver Pheasant.
- Wightman, John, Esq., }
(*Blossom Street*) } Shells from the West Indies and New
Zealand.
- Polyzoa, from Torbay.
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BOTANY.

- Baines and Duffill, Messrs., }
(*Micklegate*) } A specimen of Beechwood, in which a
branch has become reunited to the
stem by inosculation.
- Hollins, Jas., Esq., (*Heworth* }
Green) } Spike of the Kangaroo Grass-tree.
- Norcliffe, Rev. C. B., }
(*Langton Hall*) } A monstrous Branch of a Thorn Tree,
grown through a plane-iron.
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ANTIQUITIES.

- Bollans, Mr. R. Monumental figures in Brass.
- Dale, Robert, Esq. Specimens of Roman Pottery.
- Fogg, Mr. James A Sword Blade.
- Noble, the late John, Esq. Coins.
- Norcliffe, Mrs., (*Langton* }
Hall) } Tesserae, from a pavement discovered
at Langton. (See p. 21.)
- Purchased Glass and Earthen Vases, found in a
stone Coffin at Clementhorpe.
- Robinson, Rev. John A Glazed Pot, found in St. Lawrence
Church Yard.

Rush, John, Esq., (<i>The Mount</i>)	} Votive tablet to the memory of Corellia Optata. (See Report, 1861, p. 30.)
Russell, Miss M., and John, Esq., (<i>Cleasby, near Darlington</i>)	} A Sculptured Stone, found in Precentor's Court.
Taylor, Rev. R., (<i>Barmby</i>)	Stone Implement, found in a gravel-bed on Barmby Moor.
Treasury, the Lords of the	Coins, found at Malton.
Wilkinson, Jos., Esq.	A Flint Arrow head, found at Castle Howard.
Yarburgh, G. J., Esq., (<i>Heslington</i>)	} Half-Crown Weight of the time of Charles I.

MISCELLANEOUS.

Hollins, Jas., Esq., (<i>Heworth Green</i>)	} Six Clubs, a Cap, a Pillow and two Baskets from the Fiji Islands.
Russell, Miss M., (<i>Cleasby, near Darlington</i>)	} Chinese Fan and Bag.
Turner, John, Esq., (<i>De Grey Street</i>)	} A Lithographic View of the Minster, from the corner of Blake Street, dated 1828.

LIBRARY.

Admiralty, The Lords Commissioners of the	} Greenwich Observations, 1861.
Association, British, for the Advancement of Science	} Report for 1862.
The Author	The Weather-book, by Rear-Admiral Fitzroy.
The Author	Report on Mason and Dixon's Line, by Lieut. Col. J. D. Graham.
The Author	On the Scarcity of Home-grown fruits in Great Britain, with remedial suggestions by Charles Roach Smith, F. S. A.

- The Authors Synopsis of the Geology of Durham and part of Northumberland, by Richard Howse, and J. W. Kirkby.
- The Author Address delivered to the Royal Society of Edinburgh, on the 1st Dec. 1862, by Prof. J. D. Forbes.
- Berwickshire Naturalists' Club } Proceedings, vol. iv., No. 6.
- Davies, Robert, Esq., (*The Editor*) } The Life of Marmaduke Rawdon of York.
- Gray, Wm., Esq. Roy's Military Antiquities of the Romans in Britain.
- Clark's History of the British Marine Testaceous Mollusca.
- Microscopic Journal, edited by Cooper and Busk, 2 vols., 1841 & 1842.
- Transactions of the Microscopical Society, 1 vol.
- Quarterly Journal of Microscopical Science, from the commencement in 1852.
- Hollins, Jas., Esq., (*Heworth Green*) } Papers relating to Stuart's Exploring Expedition in Australia.
- Hollon, R. W., Esq. Catalogue du Musée des Thermes et de l'Hotel de Cluny.
- India, Geological Survey of Memoirs of the Geological Survey of India, vol. iv., part 1.
- Annual Report for 1862.
- Palæontologia Indica, vol. ii., parts 1 & 2.
- James, Sir Henry, R. E. ... Specimens of Photozincographic Engravings.
- Kenrick, Rev. John The Lignite of Bovey Tracey, by W. Pengelly.
- Read, W. H. R., Esq. Proceedings of the Linnean Society, nos. 25, 26, 27.
- Royal Institution of Great Britain } Proceedings, part 12, nos. 37 and 38, and list of Members and Report for 1861 and 1862.
- Société Impériale des Sciences Naturelles de Cherbourg } Mémoires, tome viii.

- Society, Anthropological, } Anthropological Review, No. 1.
of London }
- Society, Chemical Quarterly Journal for 1863.
- Society, Geological Quarterly Journal, nos. 66 to 76.
Anniversary Address by Prof. Huxley,
on 21st Feb. 1862.
Charter, Bye Laws, and List of
Members.
- Society, Halifax Literary } Annual Report for 1861—2.
and Philosophical }
- Tyneside Naturalists' Field } Transactions, vol. v., part 4, and vol.
Club } vi., part 1.
- Walker, J. F., Esq. The Inverted Scheme of Copernicus,
by B. Prescott.

SERIAL WORKS SUBSCRIBED FOR.

- A Monograph of the Trochilidæ or Humming Birds, by John Gould,
F. R. S. (completed).
- Birds of Australia, by the same, supplementary parts (3 published).
- Birds of Asia, by the same (15 parts published).
- Exotic Butterflies, being illustrations of New Species chiefly selected
from the Collections of W. Wilson Saunders and W. C. Hew-
itson. By W. C. Hewitson. (23 nos.)
- Fauna Antiqua Sivalensis, or Geology of the Sewalik Hills, in the
North of India, by Dr. Falconer and Major Cautley. (Parts 1
to 9 of Illustrations, and part 1 of Letterpress.)
- Proceedings of the Zoological Society, with Illustrations.
- Publications of the Palæontographical Society.
- Publications of the Ray Society.
- Sowerby's Thesaurus Conchyliorum, col. plates (22 parts published).
- Crania Britannica, or Delineations and Descriptions of the Skulls of
the Aboriginal and early Inhabitants of the British Islands, by
J. B. Davis, F.S.A., and J. Thurnam, M.D., F.S.A. (5 parts
published.)
- London, Edinburgh, and Dublin Philosophical Magazine.
- Annals and Magazine of Natural History.
- Archiv für Naturgeschichte.
- The Geologist.
- Gentleman's Magazine, from 1862.
- Journal of the British Archæological Association.
- Numismatic Chronicle.

